# The CHEMIST

*Publication of*

THE AMERICAN INSTITUTE OF CHEMISTS, INC.

EDWARD L. GORDY, *Editor*, 233 Broadway, New York City

VOLUME X MARCH, 1933 NUMBER 3


## TABLE OF CONTENTS




Entered as second-class matter February 28, 1930, at the Post Office at Easton, Pa., under act of August 24, 1912.

Issued monthly at 20th and Northampton Sts., Easton, Pa.
Subscription price, $2.00 a year. Single copy, 25 cents.

## Editorial Advisory Board



## Contributing Editors

## Contributing Editors (Continued)

ERNEST G. JARVIS, *President*, Niagara Falls Smelting & Refining Company, Niagara Falls, N. Y.

MARTIN KILPATRICK, JR., *Assistant Professor of Chemistry*, University of Pennsylvania, Philadelphia, Pa.

CHARLES A. KRAUS, *Research Professor of Chemistry*, Brown University, Providence, Rhode Island.

J. M. F. LEAPER, *Chief Research Chemist*, E. F. Houghton Co., Philadelphia, Pa.

ALAN PORTER LEE, *Chemical Engineer*, 123 Liberty Street. New York, N. Y.

STEWART J. LLOYD, *Dean*, School of Chemistry, Metallurgy, and Ceramics, University of Alabama, Alabama.

W. C. MACTAVISH, *Professor of Chemistry*, New York University, New York, N. Y.

ALEXANDER H. MCDOWELL, *Graduate Student*, University of Michigan, Ann Arbor, Mich.

J. S. MCHARGUE, *Acting Head of Department of Chemistry*, Kentucky Agricultural Experiment Station, Lexington, Ky.

ROBERT J. MOORE, *Development Manager*, Varnish Resin Department, Bakelite Corporation, 230 Grove Street, Bloomfield, N. J.

D. P. MORGAN, *Commercial Research*, Scudder, Stevens, and Clark, 111 Broadway, New York, N. Y.

CHARLES E. MULLIN, *Consulting Chemist*, 218 Tindall Ave., Greenville, South Carolina.

M. STARR NICHOLS, *Assistant Professor of Sanitary Chemistry*, University of Wisconsin, Madison, Wis.

C. A. NOWAK, *Director*, Nowak Chemical Laboratories, 516–17 Chemical Bldg., St. Louis, Mo.

JOHN M. ORT, *Assistant Professor of Biophysics*, Mayo Foundation, Rochester, Minn.

HOWARD W. POST, *Assistant Professor of Chemistry*, University of Buffalo, Buffalo, N. Y.

LEON V. QUIGLEY, *Public Relations Counsel*, 730 Fifth Avenue, New York, N. Y.

L. C. RAIFORD, *Professor of Organic Chemistry*, University of Iowa, Iowa City, Iowa.

W. T. READ, *Dean*, School of Chemistry, Rutgers University, New Brunswick, N. J.

A. P. SACHS, *Consulting Chemist*, 136 Liberty St., New York, N. Y.

GEORGE SCHNEIDER, *Technical Assistant to President*, Celanese Corporation of America, 180 Madison Ave., New York, N. Y.

FOSTER D. SNELL, *Consulting Chemist*, 130 Clinton Street, Brooklyn, N. Y.

JAMES N. TAYLOR, Chemical Division. Department of Commerce, Washington, D. C.

H. P. TREVITHICK, *Chief Chemist*, New York Produce Exchange, New York, N. Y.

FLORENCE E. WALL, *Research Writer, Technical Publicity*, 345 East 68th Street, New York, N. Y.

M. G. WEBER, *Consulting Chemist*, P. O. Box 1251, Hendersonville, N. C.

SAMUEL M. WEISBERG, *Industrial Research Fellow*, 1403 Eutaw Place, Baltimore, Md.

DAVID WESSON, *Technical Adviser*, 111 S. Mountain Avenue, Montclair, N. J.

THOMAS A. WRIGHT, *Secretary and Technical Director*, Lucius Pitkin, Inc., 47 Fulton Street, New York, N. Y.

JAMES ANDERSON YATES, *Head of Department*, Chemical and Physical Sciences, Kansas State Teachers College, Pittsburg, Kansas.

# The Future of Chemical Employment —A Plan

By D. H. Killeffer

**Employees must make money for their companies. How misfits occur. A service chemists and the chemical industry need.**

DURING the past three years, unemployment has been our most pressing problem. How long it will continue to be no one can with certainty foretell, but the faint hope stirred by recent developments seems to indicate that the end of the present emergency is not far distant. In any event it is not too early to begin preparations for the future and to map out a course of action to take advantage of the lessons to be learned from recent experiences.

It is scarcely probable that our world-wide economic depression will end with the same suddenness that it began; and it is unreasonable to hope for the early return of the day when everyone who chooses to call himself a chemist will be eagerly sought. Careful selecting of the man best fitted for each particular opening can be expected to continue indefinitely into the future; and it will be well for all that it is continued. It is only upon accurate fitting of individuals and needs that prosperity for either employers or employees can be built. That, if nothing more, has been the lesson we must learn from the economic debacle of the past three years; and the inescapable conclusion is that our employment methods must be fundamentally changed to provide the greatest possible security for both employers and employees. Our purpose here is to analyze this problem and to suggest a possible way out.

In what follows, we shall be under the disagreeable necessity of

differing with many well-meaning people whose hearts rule their heads in their views of certain cold facts. We would not have the interpretation placed on our discussion that we are either cold or heartless. We must also deny emphatically any lack of sympathy with the unemployed, or with efforts of those now engaged in relieving the very real distress of many of our professional brothers. We have, however, purposely avoided allowing sympathy to enter our discussion, in the firm belief that only by the dispassionate consideration of facts can real value for the future come. Relief is an essential but temporary palliative. We seek here a real remedy.

A FUNDAMENTAL economic fact of employment is often lost to sight among the complexities of modern living: not only is a worker worthy of his hire but he must be worthy of it. He must produce a value for his employer in excess of the wages he receives. That seems too elementary to require repetition here, but all of us are likely to overlook it in our sympathy for those receiving low wages. With that criterion of employment definitely before us, the present situation of unemployment is necessarily based upon one of two things: the failure of the organization as a whole to earn its way, or the failure of individuals or groups of individuals to do so.

No business, corporation, group, or individual whose object is gain will dispense with the services of employees or departments which produce profit. It follows, then, that whether we like it or not those chemically trained men and women who have been separated from employment during the present depression have been to some extent and in some way failures *in the positions they occupied*. This is obviously so, since the overwhelming majority of that group has remained employed throughout the entire disturbance.

Normally, the activity of industry is sufficiently great to provide with reasonable promptness new places for those who failed to fit in the old; and the waste in the process of trial and error is easily absorbed and written off to profit and loss. This relative ease of shifting from one position to another under normal circumstances hides effectively the economic loss both to employers and to employees inherent in a process so thoughtlessly conducted as employment has generally been. If the same proportion holds among chemists as in general industry—and in the absence of better values we may assume that it does—the normal unemployment is about one-seventh of its present value. In other words, our present situation is merely an aggravation of a condition we have always with us. For chemically trained workers, as for others,

it has meant that a larger proportion have become misfits, unprofitable to retain on the payroll and difficult to fit into new openings.

LET us consider how men "misfit" and what can be done about it. We must necessarily confine our discussion to individuals and their problems, omitting consideration of the many groups separated from employment through failures in management or administration.

During the period which began a decade ago, chemistry and research became stylish in industry. The research laboratory, elaborately equipped and generously manned, became the fad of manufacturers everywhere, whether necessary or not. No executive felt that his organization was in step with the times until he had created a research department. The demand for men to work in them became so avid that any one even slightly acquainted with chemistry had no difficulty in securing a post. Profits seemed assured, and research the surest way to provide for their continuance. Without in any way implying a denial of the fundamental value of research, the fact is that much of the research and many of the departments established for conducting it possessed more value as window-dressing than as insurance of profits. Many of these fad-engendered laboratories, it is true, have stood the test of rigid analysis on the profit and loss statement. Hence they survive after the demise of their less fortunate (or less capable) brothers.

This fad for research has, however, contributed in no small measure to the present and future problem of employment in our profession. The rather reckless handling of personnel which made research men of analysts, plant men, librarians, and salesmen, to mention only a few, was the result of an artificial demand for men to fill artificially created vacancies. In order to meet their requirements for men many organizations sent out scouts to choose the most likely prospects from the colleges and hire them on the spot, even before their graduation. Naturally many of these failed to fit, through no possible fault of their own; and because they had been originally selected to do some particular type of work, they fatuously held to the belief that they must stick at that. These men have not infrequently continued to be misfits wherever they have gone; and their goings have been often repeated for that reason alone. It is alarming to realize how few men learn by experience to estimate either their abilities or their values.

MISFITS have been mentioned as if all were alike. This is, of course, not the case; and the great majority of them distinctly lack the definiteness with which a square peg fails to fit a round hole. Rather,

we may think of professional misfits as caused by attempts to fit every kind of peg, varying through every possible geometrical form, into holes equally diverse in shape. In addition to shape, the variety of size runs, figuratively at least, from that of the office boy's assistant to chairman of the board. The normal for the present period requires that only accurately round pegs be put into round holes. A few years ago even octagons and certainly elliptical pegs passed muster.

In the near future the old process of trial and error is likely to prove too expensive, both to the employer and to the employee. Employers are not now in any position to send out scouts for the few new men they require; and it is not improbable that for some time to come it will be improvident to spend money with the old abandon even in so essential an activity as employment. Experience has taught employers that advertising for men brings flocks of applications from the misfits and few from the well qualified. It is scarcely less difficult to select the good men from the mass than to find them without advertising.

For employees, the risk of failure to fit has been materially increased by reduction in the number of opportunities to find other employment promptly; and there is little reason to believe that this scarcity of jobs is different except in degree from what the future holds for us. Obviously it is to the interest of both parties to the employment problem to have provided for them a more convenient and sure method of getting together.

THE answer lies in a central registry with backing and resources not only to keep available personal histories of those seeking work but with facilities going far beyond anything that has yet been attempted in the analysis and classification of capabilities of the applicant. At the present time the nearest approach to such an organization is the Bureau of Employment of The Chemists' Club, maintained by the generous support given it by the relatively small resident membership of the Club, with some assistance from purely nominal fees paid by the applicants whom it serves. Because of the smallness of its resources, this organization has been unable to do much that could be done and is in no position to meet properly the situation that seems ahead. It is the only organization serving chemically trained persons exclusively on a national scale. There are, however, some purely local groups performing a similar service in restricted areas; and practically every college and university maintains a placement service for its graduates.

None of these, so far as we are aware, goes far enough at present to meet the coming needs; and all are in some measure disqualified, by

their primary interest in the applicants, from doing what employers have required of their own employment departments. One should be able to approach such an employment bureau from either side, with full confidence that it has the hearty support of the other. An employer should be assured that *all* of the best men available anywhere for his particular needs will be considered for it; and that only the cream of these will be suggested to him. An employee should be able with equal confidence to rely upon those in charge to consider his qualifications for *all* openings available to him and to suggest him only for those in which his particular abilities will prove most valuable both to him and to his employer. Both should be able to secure guidance in the solution of their problems from such an organization, quite aside from and beyond the mere introduction to each other. A knowledge of methods used by others to secure certain kinds of results should be at the disposal of employers; and the latest guides developed by psychologists to help men in deciding what they can do best and with the greatest satisfaction to themselves should be provided for applicants.

ALL of these things are attempted by existing agencies, but in a rather sketchy manner because their resources are too limited. Without practically complete centralization of this function in a single organization, no agency can expect to perform a service valuable enough to justify the expense involved in expanding these activities to their practicable limits. Yet the need at the present time for such a service both to unemployed chemists and to prospective employers is enormous. Personnel offices of industries have been reduced to a bare skeleton scarcely capable of functioning should a real demand for their services arise. Employers are in no position to build up and maintain for themselves comprehensive lists of applicants; and the unemployed have come to such a pass that they much prefer to be wrongly placed than not to be placed at all. The result is sure to be chaotic and to result in another large crop of misfits as soon as the demand for men increases to considerable proportions.

It is obvious that the problem of employment is of prime importance both to the profession and to the industry of chemistry. It is one that can be solved completely by neither group alone. Only cooperative effort on the part of both parties can be expected to yield a final result mutually satisfactory and helpful in the long run. Such cooperation may well be directed toward improving existing facilities, already partially performing such a service as that advocated, in order to conserve energy and resources to the fullest possible extent....

...Let none misunderstand this to be a plea solely for help for an existing institution. It is the writer's belief that the interests of all will be best served by utilizing every existing help; and hence the reference to the unique organization with which he is connected as a possible nucleus for an expanding program.

---

# The Chemist and Industry

**A symposium held at the second regular meeting of the Niagara Chapter, A.I.C., February 24, 1933, Buffalo, New York.**

WHAT is the attitude of the average management toward the chemist? What is the attitude of the chemist himself toward his employer? To what extent are the avenues of advancement open to men of our profession in industrial life? These and other kindred questions are of special interest to those of our membership on the Niagara frontier, the second largest manufacturing district in the United States. In an attempt to bring out and coordinate the opinions of the Niagara Chapter, several members were asked to give their ideas on these questions in fifteen-minute talks.

The Chairman, William J. Cotton, stated the aims of the symposium, and then called upon the individual members.

**Charles F. Smith,** from the standpoint of the operating chemist, sees the product of our universities coming to him in various types. There are clashes between foremen and chemists which require tact on the part of the latter. There are chemists who regard their jobs and their problems as many grammar school youngsters look upon their daily tasks—something to be done to fill in the time until the bell rings. Mr. Smith spoke of having been called on the telephone at midnight to learn that the specific gravity of a certain oil had changed, when a little personal initiative on the part of the chemist involved could have handled the situation satisfactorily. A little initiative on the part of the chemist is welcomed, even if it is occasionally exhibited in the wrong direction. Intelligent initiative requires as a background constant study of the current chemical journals and the current trade journals. The ideal chemist, he said, should enter the plant with some degree of self-assurance, accept the problem assigned him, avoid friction by the display of

necessary tact, and evince a determination to see his problem through to the end. His report should contain his view as to the meaning of his work, as to the cost of the process or the change advocated, and as to its value.

**Richard B. Sheridan** was absent but sent his contribution by letter. He views the technical man as crankshaft of the engine, while the other officials exist for the most part to keep the machine oiled. There are imperfections in both groups, of course, but in general, according to Mr. Sheridan, a broad-minded technical man can do much more good than harm as an executive in a chemical manufacturing concern.

**Robert Perkins,** from the standpoint of a group-leader in research, felt that there are three reasons why technical men do not more often rise to executive positions in their organizations. In the first place, many chemists frankly do not desire executive responsibility. Secondly, there are chemists who would like executive authority but who do not care to endure the accompanying drudgery. Real executive work requires drudgery—it cannot be avoided. "This isn't chemistry, it's bookkeeping," is heard all too frequently. Apparently it cannot be assumed that chemical training *per se* is the proper training for an executive. And in the third place, there is a tendency among technical men not to cooperate whole-heartedly with policies laid down by their superiors. The right to complain and discuss can never be denied chemists or any one else, of course, but at the same time cooperation should be insisted on. The question as to the succession of chemists to executive positions is slowly answering itself, however, as the number of chemists in such positions is increasing.

**John F. Williams,** speaking as a chemist who has much to do with the machinery of the law, emphasized the importance of knowledge of the proper procedure in such technical-legal contacts. There may be attacks on products, patent litigations, excise cases, or tariff disputes, in which a chemist is called upon to take part as witness or as an adviser to counsel in framing an argument or a rebuttal. The chemist should be on his guard lest he be led by lawyers to make statements which are "stretched," to say the least. As for the succession of chemists to executive positions, Mr. Williams advanced the point of view that there are two types of men involved—the laboratory man who is trained to deal with inanimate objects, and the executive man who is accustomed to handle men—live creatures.

**Howard W. Post** presented the point of view of the university faculty. Although admittedly the academic life does not always tend toward much intimate contact with industries, it seemed to him rather deplorable that there should be any executives at all without chemical training. There is quite often no proper conception on the part of these executives of the conditions under which production is carried out and the optimum atmosphere for successful research. It was suggested that much might be saved by turning over routine analytical jobs and even minor research problems to a recognized consulting chemist, who could perform these services for a number of concerns, perhaps at less cost to each than they could carry them out for themselves. The fact that this would require confidential relations between consultant and client would introduce no new feature into modern consulting chemistry.

The teaching chemist is supposed to work for the uncovering of pure knowledge, and this pure scientific material should be at the disposal of any industrial organization. However, it might conceivably be quite disconcerting, even antagonizing, if apparatus or endowments donated to an institution of learning for the use of the department of chemistry were to be used for consulting work for the benefit of the donor's competitor. Dr. Post pointed out that there should be closer cooperation between industry and university. Leaders in industrial life should recognize the value of giving promising men the privilege of taking regular day-time courses in the university—these courses to be theoretical and not necessarily practical. The classroom should also be open to an occasional lecturer from the industries, to introduce a contact with the more practical side of chemistry.

**Arthur W. Burwell,** speaking as a manufacturing chemist found that "not enough chemists examine their own jobs." If there are chemists who do not succeed to executive positions they may have been trained along too impersonal lines, or perhaps they have too great a faith in their own laboratory work. The chemist is, like other men, too prone to make half-baked suggestions, without giving the necessary thought to the subject he is talking about. He should belong to the leading scientific organizations; and as evidence of the fact that the best men do realize this necessity, Dr. Burwell pointed out that 98% of the membership of the American Chemical Society are employed today while only 60% of non-member chemists are not idle. As to the direction of present-day chemical industry, chemists are running things in all the principal industries and the percentage is increasing.

**Maurice Taylor,** speaking as a director of research, brought out the fact that a chemist who takes an advertising or similar position ceases to be a chemist in the strict sense of the word, and it is therefore difficult to classify executives as to whether or not they are technical men. This creates a real problem in a research organization which wants to advance a man without at the same time taking him away from the job he is most fitted for. A corporation can (1) be content to operate processes and maintain quality under the assumption that things will continue as they are; (2) it may be interested in reducing costs and improving quality; or (3) it may be interested in producing something new.

Things do not remain static in this world, financially, administratively, or technically, and the function of the research chemist is to fall in with this third function, to develop something new. In commercial research the emphasis, in fact, is on the development of the new idea or the new thing, and these new ideas and new things cannot be produced mechanically. The creation of new things and new ideas is in the last analysis, a mental process. In this connection the tricks of the efficiency engineer should be viewed very critically. Otherwise individual work may be stifled.

The corporation should assure the research chemist of (1) credit for his discoveries, (2) a reasonable assurance of continuous employment and (3) a square deal in the event of a successful research problem growing into something of considerable magnitude. Without these assurances there should not be any research. With these assurances, the research chemist should plunge into his twenty-four hour job with the knowledge that success will be suitably rewarded.

**Albert Hall,** of the consulting field, brought out the fact that the modern consulting chemist specializes to a considerable extent. He begins with the consulting phase of the work and this leads to subsequent analytical contacts, the whole calling for such intimate knowledge of the technical side of industry that various phases are nowadays divided between several men in the same laboratory. He is even called upon to fill the rôle of information bureau, and answer queries as to where a certain product may be bought, where another may be sold, etc. This of course requires a considerable degree of professional confidence in keeping with that which would be required if work were being done on the larger scale as suggested by a previous speaker.

**Groves H. Cartledge** spoke on the pedagogical aims of the department of chemistry of the University of Buffalo—an emphasis on the fundamentals of chemistry and the cultivation of an attitude of reality in science and a sense of correlation of the various seemingly unrelated portions of the field. The ideas of the research chemist must meet the test of actual laboratory experience, which places the experimental sciences in a class by themselves. Overspecialization in college training is not desired. A thorough grounding is deemed the best preparation for an active career in the profession of chemistry.

**William Brown** suggested that there is a decided difference between the type of chemist who spends his life at the laboratory desk of a research organization and the type of chemist who rises to an executive positon. This difference in temperament may account for the seemingly small number of chemists who actually do rise to such positions.

**Mr. Cotton,** in summarizing, said he felt that the chemist has not done so very badly after all, as compared with men of other professions. In individual cases if he has not risen as fast as he thought he should, it may possibly have been his own fault. The opportunities today are greater than they have been for a long time for the chemist who is willing to apply himself.

# Research in a Chemical Supply House

By Randolph T. Major

**Reasons why manufacturers of chemicals must carry on research. Publication a sound policy. The new Merck laboratory.**

RESEARCH in companies which manufacture fine chemicals and pharmaceuticals serves a number of purposes; but underlying most of them is the fact that a supply house sells to a trained customer who knows what he wants, who instantly recognizes an inferior product, and who is quick to turn to any newly discovered product that serves the purpose better.

There are in general six specific reasons for such research:

1. Manufacturing processes are continually becoming obsolete. New processes must be developed, or the company will be forced out of business by its competitors. Acetic acid, at one time made almost entirely by wood-distillation, is made more cheaply today from acetylene.

2. Research on methods of packaging and preserving is essential. There is little point in manufacturing a pure chemical if the subsequent packaging and handling cause change or deterioration. It is comparatively easy to prepare ether suitable for anesthesia; but there is no completely satisfactory method of keeping it in its original state of purity.

3. Research must be carried on to improve the purity and quality of the chemicals manufactured. Medicine and science become more precise every day, and call for purer and purer chemicals.

4. New-use research is also part of a company's activities. Possible

new uses may occur to members of the research staff, or may be suggested by outsiders. All such suggestions must be carefully investigated before the product can be sold to the public for the new purpose. Iodine has been used for years as a general antiseptic, but it required painstaking research to show that iodine can also be used under special conditions as a vermifuge.

5. The research staff of a fine chemical and pharmaceutical manufacturing company should also study constantly the chemical and physical properties of the company products. The old adage, "Knowledge is power," applies with particular force when a company uses scientific research to find out all it can about the materials it is selling.

6. There must be research to find new products. All but the most staple chemicals have a period in which their use increases, and then a period in which use decreases—until finally the product may cease to have a market. This applies particularly to new drugs. At one time cocaine was the only local anesthetic known, and it gained enormous use. Today it is rapidly being supplanted by less dangerous synthetic substitutes, and the time will almost certainly come when it will practically disappear from the market.

In order to balance this process of product-obsolescence, the chemical manufacturer must conduct researches to find new things to sell. A company with a good line of chemicals can prosper for a time without such research, but not for long. At one time the forests of the country were being cut down rapidly, and for a time lumbermen prospered; but the time came when they wondered where they, and especially their children, would find any lumber left. As a result of the farsighted efforts of some individuals, laws were passed which forbade any one to cut a tree without planting another in its place. The same principle applies to chemical companies. Only those that are ever generating new life in the form of new and useful products can endure.

THE firm of Merck and Company recognizes this basic need for research. In the early days a close relationship existed between E. Merck, Darmstadt, and the American off-shoot. The American company was so situated as to utilize many of the results of the research laboratories in Darmstadt, where E. Merck had a record of scientific research dating back into the early 19th century. Following the reorganization of the American company after the War, the American company found it desirable to promote its own research program. A research laboratory had been started in 1916, to serve three of the principal research purposes: to improve processes, to improve the purity

THE NEW MERCK LABORATORY

and quality of the company's products, and to investigate to a certain extent new uses.

In 1927 the Philadelphia firm of Powers-Weightman-Rosengarten Company was merged with Merck. Powers-Weightman-Rosengarten had a strong analytic control laboratory which found time to do a certain amount of research work. The research activities of this laboratory were added to those of Merck and Company at the time of the merger. The purposes of the enlarged research laboratory continued to be those of the original Merck laboratory founded in 1916.

Soon after the merger, the management of the new concern recognized the advisability of carrying on a more extended program, which would also include other functions of research. The pure research division of the company was accordingly started in 1930, to carry on fundamental physical, chemical, and biochemical investigations, and to develop new products.

MERCK AND COMPANY has realized and still does realize that one of the best ways to acquaint others with its products is to publish its research investigations in scientific journals; and the company has therefore consistently encouraged publication of the work of the new laboratory of pure research. Whenever it is thought that a new product or process may have commercial value, a patent is applied for at about the time that the account appears in the scientific literature.

Publication of papers is also encouraged because it acts as a stimulant to the scientific work of those in the laboratories. Since the primary purpose of research is to increase knowledge, the real scientist wants his results to become known. Publication also keeps him in touch with the other investigators all over the world who are working on the same problems. The industrial investigator desires and needs this contact with his fellow-scientists just as much as the university man needs it. We find that in general a publication policy enables the company to retain the services of abler scientists than if publication were forbidden.

IN 1930 the laboratory which had been used for research since 1916 was designated the applied research laboratory, and its investigators were given the additional job of studying the best methods of packaging and keeping the drugs and chemicals manufactured by the company.

Only temporary quarters were given the group that was to carry on pure research, as the quarters of the applied research laboratory were quite inadequate. Accordingly, in the spring of 1932, a new research laboratory was started, to bring under one roof all the research activities of the company. It has just been completed.

The building is a colonial brick structure with a central section forty by eighty feet, flanked by two one-story wings, each fifty by one hundred feet. The north wing contains a laboratory fifty by fifty feet, suitable for the accommodation of twelve chemists who carry on experiments in applied research. In this wing are also facilities for studying small-scale plant operations, the logical step between research and manufacture.

The south wing contains four laboratories twenty by twenty feet, each suitable for two chemists, who work in organic and biological chemistry. Adjoining each laboratory is an office for the chemists in the laboratory. This wing also has a laboratory for microanalysis, and several smaller rooms for incubators, sterilizers, ice, refrigerators, and balances.

The rear of this wing is occupied by the Merck Institute of Therapeutic Research. Pharmacological investigations are carried on in the laboratories of the Institute.

On the first floor of the central section of the research building are located the offices and private laboratories of the director of applied research and of the director of pure research. In addition to these laboratories and offices there is an optical laboratory and a physical laboratory, as well as a container laboratory in which studies of suitable containers and methods of packaging are undertaken. In this section

there is also a storeroom and a glass-washing room to which all the dirty glassware in the building is brought and cleaned.

On the second floor of the central section are located the offices of the technical director of the company and his staff, the office of the vice-president in charge of new products, and the office of a patent attorney. Here also is the research library. The library presents a quiet, informal, rustic appearance with its fireplace, pine-panelled walls, and exposed rough-hewn heavy wooden beams. This library serves the needs of the laboratory staff and visiting scientists, and provides extensive book stacks, with complete files of scientific and medical literature.

The basement of the central section contains a constant-temperature and humidity room, a dark-room, a combustion analysis laboratory, glass-blowing room, and a carpenter shop. Provision has also been made for additional chemical and glassware storage, and for a machine and battery room.

ALL the laboratories are walled with a specially prepared non-glare white tile, and the lighting is to a great extent natural, supplemented by direct and indirect artificial lights. Special attention has been given to the ventilation and exhaust systems. Each laboratory hood is exhausted under forced draft directly to the outer air through an individual flue, thus obviating dangers from back drafts. The exhaust fans, their motors, and the ceramic-ware exhaust ducts are placed in the attics of the wings.

The following services are available: cold, hot, and distilled water, air pressure, vacuum, gas, oxygen, steam, and alternating and direct current. Distilled water is made and stored in large block-tin lined containers in the attics, and is distributed in block-tin lines. The hot and cold water and oxygen lines are of brass, the other lines—except the drainage lines, which are of Duriron—are of iron.

The laboratory furniture is of wood, except the tops of the laboratory tables, which are soapstone, and the fume hoods, which are made of impregnated asbestos board. The general construction of the building is a slow-burning, fire-resisting type, and is fully sprinklered.

Merck and Company expects and fully believes that the research which will be carried on in this new laboratory will enable the company to maintain its position in the fine chemical and pharmaceutical field and will enable it to grow and to increase its usefulness to medical men and scientists and to mankind in general.

# Food Chemist

**A teacher whose study of quantitative analysis led him to become a pioneer in vitamins and enzymes. H. C. Sherman, 1933 medalist of The American Institute of Chemists.**

A NATIVE-BORN Virginian who is at the same time a New Englander, H. C. Sherman perhaps shows in his family background why he was not content to re-work the old subjects of quantitative analysis and why he has gone as lecturer and consultant on food chemistry into three-quarters of the states of his own country and as far afield as Russia.

The first American Sherman came to Massachusetts from England at about the same time as Roger Williams, and went with the rebellious Williams to found the Providence Plantations and the colony of Rhode Island. From Rhode Island, one branch of the family spread into Connecticut, and thence into Ohio, there to produce William Tecumseh Sherman. Another branch made its way into western New York, and in 1850 moved again, this time into northern Virginia. Eleven years of Virginia did not quite make a Southerner of Franklin Sherman, who fought through the latter half of the Civil War as captain in a regiment of Michigan cavalry. He returned to Fairfax County afterward; and it was there, on his father's farm, that Henry C. Sherman was born.

From the farm young Sherman went in the autumn of 1889 to the Maryland Agricultural College, now the University of Maryland. After receiving his B.S. degree, he remained two years longer as assistant in chemistry. Going on to Columbia as a fellow in chemistry, he received his Ph.D. in 1897. Both universities have since conferred upon him the honorary degree of Sc.D.

The year after he received his doctor's degree, Sherman began to

lay the real foundation of the interest in food chemistry that was to provide him with the subject for his most important researches. Under appointment as assistant in the nutrition work of the U. S. Department of Agriculture, he worked at Wesleyan University with Professor Atwater, director of the investigations.

IN 1898 Professor Ricketts of Columbia retired from active teaching, and Dr. Sherman was brought back to Columbia to share with Professor Miller the responsibility for instruction in quantitative analysis at Columbia. In addition to assisting Professor Miller in the larger courses, he was given charge of the course in food analysis; and a little later Professor Chandler assigned to him the food-industry lectures in the course on industrial chemistry.

That his teaching and research work have been concerned so largely with the chemistry of food and nutrition is thus the result of a combination of circumstances: his early agricultural training and experience, his association with Professor Atwater in nutrition research, and the generosity of Professors Miller and Chandler in so early entrusting to him such instruction in food chemistry as Columbia then offered.

Although he still had varied teaching responsibilities, particularly at first, and taught analytical chemistry as well as some of the chemical engineering, Dr. Sherman's own researches concentrated more and more on the foodstuffs. He was convinced of the inherent importance of this branch of chemistry.

Professor Sherman was one of the first to insist on quantitative analysis of foods for iron, and on the importance of iron and other minerals, particularly phosphorus, in nutrition. He became one of the leaders in developing our knowledge of the various vitamins, and he pointed out their importance not only to prevent disease but for normal health. He is one of the foremost investigators of enzymes; and he has made outstanding contributions to our knowledge of their chemical nature, especially that of the starch-splitting enzymes.

In 1919 Dr. Sherman was made executive officer of the department of chemistry; and in 1924 he succeeded to the chair held by Dr. Chandler—the Mitchill Professorship of Chemistry. Dr. Sherman particularly prizes this title, not only because he had studied and worked under Professor Chandler, but also because of the associations with Dr. Mitchill, who some century and a half earlier had occupied at Columbia the comprehensive professorship of chemistry, natural history, and agriculture. It seems to Dr. Sherman appropriate that a professor-

ship officially designated as the lineal descendant of Dr. Mitchill's should give part of its attention to a peculiarly natural phase of chemistry.

BUT Dr. Mitchill was an 18th century upholder of the most advanced theoretical chemistry of his day; and the present holder of the Mitchill chair, while continuing his own line of teaching and research, has actively continued to build up the theoretical aspects of the department to which the previous head, Dr. Alexander Smith, had so effectively devoted himself. It has been the ideal of the Columbia department to go constantly forward in the full spirit of Mitchill and Chandler and Smith—an integrated ideal which understands chemistry in the broadest sense and seeks to develop it in all its branches in the most modern manner.

Dr. Sherman has always insisted that every member of the departmsnt have the fullest freedom, as well as material and moral support, in developing his chosen field according to his own genius. Every advanced student in the department is given breadth of training in chemistry as a whole and also such depth of training in some major aspect of it as will fit him effectively to take part in the advancement of both the science and the profession of chemistry. In these days the subject-matter of chemistry is so great as to make some degree of specialization imperative; but Columbia recognizes no less keenly that the chemists of tomorrow must be (in President Butler's phrase) not a narrow man but a broad man sharpened to a point.

Having been for 37 years a teacher in this training school for chemists, and most of that time either its executive servant or adviser to its graduate students, the medalist's professional life has been merged with that of a developing profession. He holds that his best discoveries are the young chemists whom he has been able to aid and encourage and who are now successfully and devotedly advancing the science and profession of chemistry.

DR. SHERMAN believes in a reasonable participation in extra-curricular activities by the teachers as well as by the students of an academic community. He served upon the food supply committee of the New York Association for Improving the Condition of the Poor, and he has had the satisfaction of seeing that strictly comparable studies made by that Association show marked progress in the food and nutrition conditions of the rank and file of New York City families over a period of fifteen years—a most gratifying demonstration of the prompt-

ness with which the newer knowledge of nutrition is reaching the homes of the people who need it most.

During the War Dr. Sherman was a member of the American Red Cross mission to Russia, studying especially the food and nutrition problems of the Russian people under both the chronic pre-war conditions and the more acute conditions of the war years. The experiences gained in the Russian studies and in those of the New York City poor have found opportunity for service to the people of Port Rico, through the School of Tropical Medicine at San Juan.

Among Dr. Sherman's other services to the community at large may be mentioned the presidency of the Society of Biological Chemists and of the American Institute of Nutrition; the chairmanship of the committee on human nutrition of the National Research Council, of the committee on nutritional problems of the American Public Health Association, and of the A.C.S. committee on methods of vitamin research; American editorship of the British international quarterly, "Nutrition Abstracts and Reviews;" and a series of occasional appointments and invitations involving lectures in thirty-five states, Canada, and Porto Rico.

Dr. Sherman's unusual gift of expressing important scientific facts in a clear-cut understandable manner has made his work as a teacher and writer of great influence throughout the world. His researches, most of them in partnership with his students, have given rise to about two hundred scientific papers and four books, one of which is now in its fourth edition.

AMONG the contributions resulting from his scientific work are a number of papers on analytical chemistry, prepared early in his career, when he taught that subject; a series of papers on the chemical nature of the enzymes; the quantitative working out of the requirements for calcium, phosphorus, and iron in human nutrition; the development of methods for the quantitative determination of vitamin values in foods; and a number of contributions on the nutritional significance of vitamins A, B, C, D, and G. Dr. Sherman has correlated these studies with data on the composition and nutritive values of foods, and has deduced therefrom chemical principles for solving many of the problems of food economics.

Recently this research extended to experiments upon the whole life cycle of laboratory animals. By the application of all the newly discovered facts and principles in the chemistry of nutrition (and using everyday staple foods) it becomes possible to advance the standard of

health and the life expectation of the animal. Here the chemistry of nutrition makes a positive contribution to longevity, previously correlated only with hereditary factors.

In collaboration with Dr. H. L. Campbell at Columbia, and with the aid of the Carnegie Institution at Washington, Dr. Sherman is now engaged in studying further the relation of food to longevity, with a view to finding out which chemical factors of the food improve an already normal condition of nutrition and extend the average length of life.

Dr. Sherman still gets his greatest satisfaction, however, from what he describes as his scientific and professional grandchildren—students of those who have studied with him, and discoveries by the chemists he has discovered.

---

## Study of Recent Developments

IN VIEW of the success of a similar undertaking last year, The Johns Hopkins University will this summer conduct a second conference on recent developments in chemistry. This will operate in conjunction with the regular summer session.

The conference will be divided into five consecutive sessions of one week each. Each week will be devoted to one phase of chemical progress, and will feature lectures by men famous in that particular field.

Students may register for the full five weeks, or for any part of the program that interests them. For the entire series, the tuition fee for one summer course at the university, $25.00, will be charged; or the conference may be attended as one of the three courses included in the $40.00 summer tuition fee. The charge for one week is $5.00, plus a registration fee of $3.00.

Cottages on the shore of Chesapeake Bay, within commuting distance of the University, are available for those who wish to combine a summer vacation with scientific study and discussion.

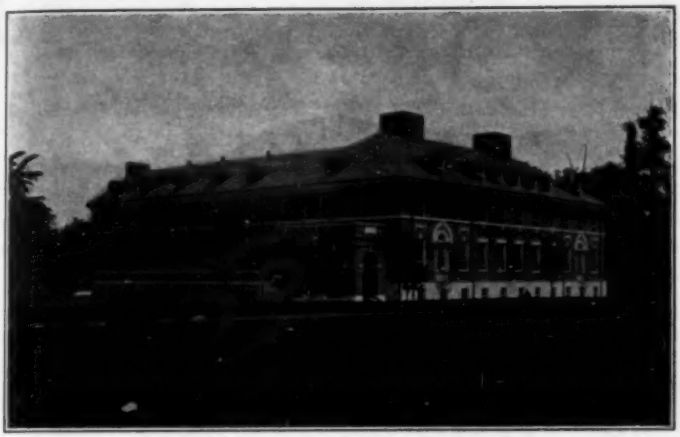
The schedule of conferences is as follows:

JUNE 26–30

ORGANIC CHEMISTRY RELATED TO MEDICINE. E. Emmet Reid and G. H. Corwin, presiding.

June 26. Antiseptics. Lectures by Justina Hill, Fitzgerald Dunning, Edwin C. White, and W. C. Harden. Round table discussion.

June 27. Oxidation and Reduction. Lectures by E. Emmet Reid, Leslie Hellerman, and G. H. Corwin.



CHEMISTRY BUILDING, JOHNS HOPKINS

June 28. Insulin and Proteins. Lectures by Gordon M. Dean, Hans Jensen, John J. Abel.

June 29. Chemistry and Physics in Cancer. Lectures by Charles F. Geschickter, E. A. Peterson, Dudley Jackson, Curtis Burman, M. A. Tuve, Carl Voegtlin, Mr. and Mrs. Warren Harmon Lewis, Mr. and Mrs. George Otto Gey, and Joseph C. Bloodgood.

June 30. Chemotherapy. Lectures by Hugh Young, Justina Hill, David I. Macht. Round table discussion.

JULY 3–7

PHYSICAL TREATMENT OF MOLECULAR BINDING. Joseph E. Mayer, presiding.

July 3. Joseph E. Mayer: Ionic Binding and Ionic Crystals.

July 4. Maurince L. Huggins: Interatomic Distance in Crystals and Molecules.

July 5. Hugh M. Smallwood: The Calculations of Some Molecular Properties.

July 6. Henry Eyring: Quantum Mechanical Treatment of Reactions between Molecules.

July 7. Saul Dushman: Quantum Theory of Valence.

JULY 10–14

X-RAYS AND STRUCTURE OF MATTER. Emil Ott, presiding.

July 10–11. Ralph W. G. Wyckoff: X-ray Reflections in Crystal Analysis.

July 12. Maurice L. Huggins: Interatomic Distances.

July 13. Emil Ott: Long Chain Compounds and High Polymers.

July 14. Emil Ott: Diffraction in Liquids and Gases. Other Topics.

JULY 17–21

OPTICAL METHODS IN CHEMICAL RESEARCH. A. Herman Pfund, presiding.

July 17. A. Herman Pfund: Measurement of Small Displacements. Fluorescence, Infra-Red.
July 18. George F. A. Stutz: Particle Size—Turbidity.
July 19. Charles C. Nitchie: Spectrographic Analysis.
July 20. H. E. Merwin: Refractive Index.
July 21. Ralph H. Muller: Colorimetry.

JULY 24–28

CATALYSIS. J. C. W. Frazer, presiding.

July 24. Paul Hugh Emmett: Conversion of Para- and Ortho-Hydrogen.
July 25. Paul Hugh Emmett: Catalytic Synthesis of Ammonia.
July 26. J. C. W. Frazer: Adsorption of Gases by Solids.
July 26. Arthur F. Benton: Mechanism of Contact Catalysis.
July 27. J. A. Becker: Relation between Thermionic Emission and Adsorption Phenomena.
July 28. Herbert G. Tanner: Influence of Temperature upon Catalytic Combination of Hydrogen and Oxygen.

# Advice to Experts

**What a chemist has found out about the highly important matter of fees. Some practical suggestions.**

THE writer has noticed from time to time various kinds of advice to experts, but little along business or financial lines—which are of cardinal importance. From the very fact that a report once delivered cannot be altered like a suit of clothes, to fit someone else, a substantial retainer or cash-with-the-order policy is the only safe and satisfactory procedure. Speaking from an experience of more than thirty-five years, every deviation from this rule has been most vexatious. It has in some cases involved as much effort to collect the bill as to do the work itself.

Public service companies—particularly gas companies—notwithstanding their popular reputation, are to be rated AAA to have dealings with. A more courteous, honest, law-abiding group of officials is hard to find. I would be inclined to put some, but not all, of the large accident or liability insurance companies and their lawyers at the other extreme. They have extended their treatment of plaintiffs to their experts. The writer can mention a case in which experts' bills were held up for two years solely because they were larger than the bill of the lawyer who defended the case.

There are some lawyers with whom it is a pleasure to work—honorable, high-class gentlemen whose word is as good as their bond, and who pay their bills promptly and without quibbling. Others take a case on a contingent fee, and expect the expert to do the same thing—which for an expert is against the rules of procedure. They agree to "take care of you," but if beaten they say, "You were not working for me but for the plaintiff."

Some district attorneys will call (fortunately they can't "summon") an expert a hundred miles or more, accept his report, and send his bill to the rural judge, who proceeds to trim it down to what he thinks "reasonable." In some New England states the fee is from $50 to $100 a day; in the Middle West $50 a day is the legal fee for an expert.

In dealing with such cases the only safe rule is to have a clear understanding and a sufficient retainer. Clients are usually quite ready to pay before litigation starts—but try and get it after testifying, particularly if you are on the losing side. —G.

# BY-PRODUCTS

## Planned Economy

The Barrister, half-somnolent, was meditating over his after-dinner cigar while the autocratic one was examining some galley proof. A good-for-digestion peace and quietness saturated the room. No one had turned on the radio, and the Hertzian disturbances of jazz and croon remained untranslated into the sensible range. Then the Biologist happened in, brimming with ideas, and stirred up the Barrister. We paid little attention to the preliminary rounds, concentrating on our proofs, until we heard the Biologist say:

"We have been going in a hit-or-miss fashion too long. The world is muddling along, now going forward, now slipping backward, and tumbling in a heap every so often. Continually violating every important biological law and crying when the inevitable consequences come upon us. We have to stop this foolishness. Society must plan its future in the light of scientific knowledge. We must plan production to avoid excess. We must plan employment to avoid idleness and poverty. We must plan our mode of living to avoid disease and prevent crime."

"Sounds Neo-Platonic," murmured the Barrister when the Biologist had paused for breath. "Who is going to do all this planning?"

"The men who are trained for it," replied the scientist. "The men who have devoted their lives and energies to the study of biology, economics, engineering, anthropology, and the like. These men are capable of directing the energies of the people so as to bring about a sensible prosperity for everyone."

"How are they to put their ideas in force?"

"That must be a governmental function," asserted the Biologist. "The program would affect everyone, and due to its universal application would have to be carried out by the government."

"Why wouldn't that be a dictatorship?" queried the man of law. It seemed to strike the Biologist as a new idea.

"I don't think we need worry about that," he ventured finally. "What I have in mind would require a board of managers, not a single individual with autocratic powers. Besides, the Constitution would protect us from any serious abuse of power."

"The Constitution would," agreed the Barrister, "but your proposed planning board would be powerless unless it were supported by legal authority to enforce its decrees. As there is no such legal provision at present, the first necessity is an amendment to the Constitution. That would remove the protection."

"Trust a lawyer to see only the hole in the doughnut. Why not forget your statutes once in a while and give some serious thought to a proposition on its own merits?"

The other smiled. "If a man ignorant of genetics should undertake to breed livestock or develop new varieties of flowers or fruits, the average biologist would consider him rash. We lawyers find that most of the legal difficulties in which people become involved result from lack of knowledge of the legal implications of their undertakings. When we passed the 18th amendment, we blandly assumed that it would enforce itself."

"Of course, where there are legal complications, lawyers must be consulted. But let's look at the rest of the problem. Take the overproduction due to mass-production and economical factory organization. We cannot allow this to continue indefinitely, glutting the market with cheap goods and forcing an ever-increasing number of men into idleness."

"Well, let's see," began the Barrister. "The economists have a law of demand and supply."

"Exactly," agreed the Biologist. "It is the operation of that law that shuts down the factory and throws the workmen into the streets when the market is overstocked. Production should be scaled down to conform to the requirements of the consumer. Industry should be conducted in harmony with the law of demand and supply and not in violation of it."

"Why is that law violated?"

"Mostly ignorance of economic theory, sometimes in defiance of it—'*apres moi le déluge.*'"

"It is, then, profitable to someone to violate economic law?" asked the Barrister.

"Of course," said the scientist. "Under our competitive system one concern can get the jump, flood the market quickly with goods, clean up, and leave its competitors with large stocks and no markets. To change that we must portion out a quota to each production-unit and forbid their exceeding it."

"Won't you also have to force each unit to produce as much as its quota? If the total of goods produced is calculated exactly to the

requirements of consumption then you cannot allow any unit to produce less than its quota. What will happen when a factory burns or is blown up or otherwise destroyed? Will there be a scarcity, or do you intend to provide spare factories to be used only in emergencies?"

"Those are details. The important thing is to recognize the principle that planned and controlled industry is the solution of over-production and under-employment. The sooner we adopt it the sooner we shall get back on the road to prosperity."

"Very well," agreed the Barrister, "assume the principle in force. With a series of industrial units producing approximately the amount of goods that can be consumed, won't prices tend to rise, since the condition is essentially monopolistic?"

"Perhaps. However, that can be remedied by assigning a definite maximum selling-price, on some such basis as cost-plus."

"How about the foreign producer who may attempt to take advantage of an unsaturated market and a fixed price?"

The Biologist sighed wearily. "There is the tariff," he said.

"And that," said the Barrister "seems to get us into politics. Shall we tack away? But tell me, just how extensively do you think this planned control should be applied?"

"Eventually, over all production."

"Movies, theaters, book publishers, opera singers?"

"Well," grinned the other, "application in some fields will be difficult, and perhaps we can leave a few loopholes for individual genius."

"I am concerned for the lawyers," said the Barrister. "You do not seem to have provided for them."

"Oh!" cried the Biologist, "the system probably will make lawyers unnecessary."

"And my guess," returned the other, "is that the lawyers will be found running the system."

## They Say

"My personal belief and, I think, the universal belief of all true men of science, is that humanity can aspire to nothing more lofty or more satisfactory than a philosophy based solely on demonstrated truth.

"The convictions of the radical behaviorists are all emotional in character. For some unknown reason they wish to believe in the innate intellectual parity of all members of the human race. Their minds are firmly conditioned in this respect."—EAST, "Biology in Human Affairs."

—*The Autocratic Chemist*

# BOOK REVIEWS

**100,000,000 Guinea Pigs.** By ARTHUR KALLET and F. J. SCHLINK. *The Vanguard Press.* New York. $2.00.

Messrs. Kallet and Schlink tell us that the population of these United States are guinea pigs on which the food, drug, and patent medicine manufacturers continually experiment with various worthless but harmless, dangerous, and actively poisonous preparations for the sake of the almighty dollar. They tell us that whatever protection for the public was once to be expected from the Pure Food Laws has long since vanished by the combined effects of judicial attrition, insufficient enforcement funds, and administrative susceptibility to political pressure. They present a scheme of combined popular revolt and legal changes to resecure for the consuming public the honest quality in foods and drugs to which it is entitled. All of this is as much news to the wide-awake student of affairs and particularly to the subscriber to Consumers' Research, Inc., in which both authors play an active part, as is the classic about the man who was bitten by the dog.

On the merit side, the book has innumerable citations by name of many products which are widely known and advertised. It is interestingly written and marks another step in the campaign which began on the part of a few individuals like the father of our fellow-member, O. P. Amend; continued with the valiant efforts of our late honorary member, Harvey W. Wiley; had publicity in Samuel H. Adams "Great American Fraud;" and needs must continue until the profit from selling trash and poison is gone.

On the demerit side, there is continued irritating overstatement and overwriting which may damage the cause the book represents. For instance, in Chapter III we are told that the difference between $^{1}/_{100}$ grain of arsenic per pound and $^{12}/_{1000}$ grain is something to get excited about. It is doubtful if any chemist will be able to raise much excitement about this in *his* food.

Even with due discount there is much in the book that is true, and certainly all of it should be of interest to every member of the public.

KARL M. HERSTEIN

**Review of Chemistry and Technology of Cracking.** By Sachane & Tilicheyev. *The Chemical Catalog Co.*

An attempt has been made in this book to cover the chemistry and technology of cracking in a systematic and scientific manner. The arrangement is good and the book is divided up into the following chapters: The Fundamental Features of Cracking; Cracking Crude Oil and Crude Oil Products; The Chemistry of Cracking; Chemical Composition of Cracked Compounds; Cracked Gasolines, Properties and Treatment; Cracked Kerosenes and Heavier Oil Distillates; Residues, Coke, and Gases Obtained by Cracking; Principal Cracking Systems; and Hydrogenation of Petroleum Products.

In the reviewer's opinion the authors have in some cases ignored or failed to evaluate properly the work of others and have attempted to set up arbitrary rules governing cracking based on relatively meager experimental work of their own. In the section on cracking particularly they have generalized over a wide field based upon experimentation over a relatively narrow range of conditions.

As specific examples among generalizations which cannot be supported are those relating to velocity of cracking (page 21); rate of heating on speed of reaction (see page 20, Table 2); amount of gasoline as function of cracking (see page 31, Table 13); velocity of cracking as a function of individual characteristics of fraction (pages 32, 33, etc.); (also see pages 25 to 32).

In Chapter 8, where the authors have attempted to classify the principal cracking systems, they have overlooked many important commercial developments of the past five years, particularly those relating to the production of high yields of gasoline of high octane number and a fuel oil free from B.S. or suspended matter.

The book is a contribution to the art, but many of the data and conclusions contained therein, particularly those based upon the authors' own work, require careful weighing and evaluation.

J. C. Morrell

# INSTITUTE NOTES

## OFFICERS

HENRY G. KNIGHT, *President*
Bureau of Chemistry and Soils
Washington, D. C.

M. L. CROSSLEY, *Vice-President*

HOWARD S. NEIMAN, *Secretary*
233 Broadway
New York City

D. P. MORGAN, *Treasurer*

## COUNCILORS

| *Past Presidents* | 1933 | 1934 | 1935 |
|---|---|---|---|
| HORACE G. BYERS | HENRY ARNSTEIN | L. V. REDMAN | D. D. JACKSON |
| M. L. CROSSLEY | FRANK G. BREYER | ALLEN ROGERS | FREDERICK KENNEY |
| TREAT B. JOHNSON | HERBERT R. MOODY | FREDERICK W. ZONS | A. P. SACHS |
| FREDERICK E. BREITHUT | | | |

*Philadelphia Representative* W. T. TAGGART

*New York Representative* BENJAMIN T. BROOKS

*Washington Representative* A. L. MEHRING

## National Council

The ninety-ninth meeting of the Council of The American Institute of Chemists was held at The Chemists' Club, 52 East 41st Street, New York, on Thursday, February 16th. In the absence of President Henry G. Knight, Dr. M. L. Crossley presided.

The following councilors and officers were present: Messrs. Breyer, Crossley, Jackson, Kenney, Moody, Morgan, Neiman, and Zons. Mr. E. L. Gordy, editor of THE CHEMIST, was also present.

The Treasurer's report was submitted, accepted, and filed.

The Secretary presented a letter from Dr. William H. Walker accepting his election as an Honorary Member.

The Secretary reported upon an amended constitution for the Buffalo Chapter; and the revised form was approved by the Council. The Council directed the Secretary to write Dr. Post to the effect that the Council suggest the name "Niagara Chapter" rather than "Niagara Frontier Chapter," and that the territory covered by the Chapter should include the counties of Orleans, Genesee, Wyoming, Cattaraugus, Erie, and Niagara.

Dr. Crossley reported progress for the Committee on Group Insurance.

The Secretary read a letter from Dr. Henry Arnstein to Dr. Tyson, outlining a number of suggestions for chapter papers. He also read a letter from the American Institute of Chemical Engineers relative to the Shannon Bill.

The Secretary reported that the present membership of the Institute is 716, an increase of 77 members over the corresponding date of last year.

Ten candidates were elected to membership in the Institute.

HOWARD S. NEIMAN, *Secretary*

## Pennsylvania Chapter

The speaker at the February meeting was Mr. George E. Whitwell, vice-president in charge of sales of the Philadelphia Electric Company. His subject, "Experiences of One Trained as a Chemist," served to emphasize the many fields into which the chemist is apt to wander. Mr. Whitwell not only worked as a chemist, but also served several years as a teacher at George Washington University, was engaged as a chemical engineer in the manufacture of water gas, and served in various capacities in the utilities field. He stated that he would rather have a chemical engineer sell power for him than a man trained in any other profession. It is important that the power salesman have a working knowledge of the customer's problems. Only a chemical engineer is apt to have this, for he has knowledge of more industrial processes than any other technical man.

Mr. Whitwell's experiences with young college men have made him feel that two things might be stressed more in their training: that business operates to make money, and that a knowledge of how men's minds work is a useful asset in business. Economic phases of plant design should also be given more attention in college—the terms "interest on investment, depreciation, obsolescence," etc., should be made clear, and their importance emphasized more strongly.

Mr. Whitwell's talk was followed by an animated discussion.

HOWARD STOERTZ, *Reporter*

It was erroneously stated in the February issue that Mr. Charles W. Rivise is connected with the U. S. Patent Office. Mr. Rivise has left the government service to practice as a patent attorney.

## New York Chapter

A meeting of the chapter was held at The Chemists' Club on March 3rd, with Chairman D. D. Jackson presiding. The meeting was preceded by a dinner at the Club.

The paper of the evening was presented by Dr. Reuel C. Stratton, supervising chemical engineer of The Travelers Insurance Company, who spoke on "The Field of the Chemist in Accident and Occupational Disease Prevention."

Dr. Stratton pointed out that there are new opportunities for the chemist in insurance, particularly in the prevention of accidents and occupational diseases. He described in detail the ways in which the chemist plays a part in this work, and the problems the chemist must solve in correcting and controlling insurance exposures.

The paper also discussed the chemical fields which are covered by insurance, and went with some detail into the relation of the chemist and the industries he creates to life, casualty, indemnity, and fire insurance.

## Niagara Chapter

A meeting, preceded by dinner, was held Friday evening February 24th, at the Hotel Touraine, Buffalo, with Chairman William J. Cotton presiding. Dr. Groves H. Cartledge, of the University of Buffalo, and Dr. William Brown, of the Lucidol Corporation, were present as guests.

After dinner a symposium was held on "The Relation of the Chemist to

Industry." The opinions presented will be found reported in detail on page 90 of this issue of THE CHEMIST.

After the regular presentation of ideas a lively discussion was held. Many of the members and guests remained even after adjournment.

It was announced that the May meeting, the annual meeting for the election of officers, will be held at Niagara Falls.

HOWARD W. POST, *Secretary*

## New Members

The following members were elected at the February meeting of the National Council:

FELLOWS

WILLIAM B. BROWN, *Research Chemist*, Lucidol Corporation, 293 Larkin Street, Buffalo, N. Y.

E. H. BUCY, *Vice-president and Director of Research*, Brevolite Lacquer Company, North Chicago, Ill.

LLOYD C. DANIELS, *Assistant Technical Director*, The Selden Company, Pittsburgh, Pa.

DONALD EDWARDS EDGAR, *Research Chemist*, E. I. du Pont de Nemours, Parlin, N. J.

ROBERT CRAIG ERNST, *Associate Professor*, University of Louisville, Louisville, Ky.

STUART KABNICK, *Chemical Researcher in Dentistry*, Pennsylvania Biochemical Laboratory, 1410 Spruce Street, Philadelphia, Pa.

CHARLES GLEN KING, *Professor of Chemistry*, University of Pittsburgh, Pittsburgh, Pa.

ASSOCIATES

C. MAURICE CONNOR, *Chemist*, Glassine Paper Company, West Conshohocken, Pa.

DONALD MASON ROCKWELL, *Teacher*, Juniata College, Huntingdon, Pa.

JUNIOR

ELIZABETH M. MULHALL, *Research Chemist and Physiologist*, Reed and Carnrick, 157 Van Wagenen Avenue, Jersey City, N. J.

## Applications for Membership

FELLOWS

EDWARD MACKAY CHACE, *Senior Chemist*, Laboratory of Fruit and Vegetable Chemistry, U. S. Department of Agriculture, 148 South Mission Road, Los Angeles, Calif.

ERNEST R. HANSON, *Chief Chemist*, Halowax Corporation, 230 Grove Street, Bloomfield, N. J.

JOHN MILLS HAYNES, *Lecturer in Pharmacology*, State Medical College of South Carolina, Charleston, S. C.

JUSTIN F. WAIT, *Consulting Chemist and Engineer*, 1520 Jesup Avenue, New York, N. Y.

ASSOCIATES

LOTHIAN M. BURGESS, *Chemist*, Pilot Chemical Corporation, Carlstadt, N. J.

EVANGELINE F. DECKERT, *Research Chemist*, Reed and Carnrick, 157 Van Wagenen Avenue, Jersey City, N. J.

HYMAN JOSEPH MANDEL, *Chemist*, The Warner Laboratories, 21 Baldwin Street, Newark, N. J.

ALEXANDER OLOTKA, *Research Chemist*, Robert Rauh, Inc., 480 Frelinghuysen Ave., Newark, N. J.

JUNIOR

ELEANOR F. BASSETT, *Assistant Chemist*, Board of Health Laboratory, City of New Orleans, La.

# NEWS

## Chemist Honored

**A. Richard Bliss, Jr.,** F.A.I.C., chief of the division of pharmacology, College of Medicine, University of Tennessee, has been awarded a medal by Columbia University as one of a group of distinguished alumni who have rendered conspicuous service in University

and alumni affairs. Others to receive the new award, instituted this year, include President Nicholas Murray Butler, Frederick P. Keppel, vice-president of the Carnegie Corporation, Colonel William J. Donovan, recent Republican candidate for governor of New York, and other distinguished alumni of Columbia in various parts of the world.

Dr. Bliss has also recently been elected United States secretary of the International Faculty of Science.

---

## Elected Fellow

**Edward R. Schwarz,** of the department of mechanical engineering at the Massachusetts Institute of Technology, has been elected to fellowship in the British Textile Institute. This honor comes to Professor Schwarz in recognition of his notable contributions in the field of textile technology and research.

A charter member of the United States Institute for Textile Research under the presidency of the late Dr. Samuel W. Stratton, Professor Schwarz is at present chairman of that organization's committee on bibliography and abstracts, as well as chairman of its board of editors. In the latter capacity, he supervised preparation of "Textile Research—A Survey of Progress," the first volume published by the Technology Press.

---

## Chemist at Monte Carlo

The mathematicians having failed, a chemist has at last devised a system for winning steadily at the Casino at Monte Carlo. By marking chemically the backs of the cards used at chemin-de-fer, and then wearing glasses which made the markings visible, the chemist and his accomplices were able to win consistently for about two weeks. They were finally detected when one of Monaco's secret police got a glimpse at the cards through the special glasses of one of the players.

---

**J. Mitchell Fain,** consulting chemist, is now associated with Foster D. Snell, Inc., 130 Clinton Street, Brooklyn, N. Y.

**T. C. Poulter,** of Iowa Wesleyan, will be one of the scientists to accompany the coming Byrd expedition to the Antarctic.

## Book on Fair

A detailed account of the Children's Science Fair has recently been published by The American Institute, 60 East 42nd Street, New York. The Fair, held each year by The American Institute at the American Museum of Natural History for the school children of New York City, has become a leading project in progressive science education.

"Each year," says Mr. L. W. Hutchins, Director of the Institute, "educators from all the surrounding colleges come to the Museum to study this undertaking. Representatives from museums such as the new Museum of Science and Industry in Chicago, the Buffalo Museum of Science, and many others have spent several days with us

L. W. HUTCHINS

going over each detail of procedure with a view to establishing similar Fairs in their cities.

"The book, 'The Children's Science Fair—a Project in Science Education,' by Dr. Morris Meister, head of the science department of New York Teachers' Training College and chairman of the plan committee for the Fair, is written especially for science teachers and those museums and institutions which are interested in advancing the educational methods of their communities.

"This year in New York City we had 478 exhibits representing the work of some 7000 or more school children. The projects were displays of innumerable scientific principles and scientific observations. They were entirely the work of the child exhibitors. The recognition of this amazing interest of children in science leads us to believe that the Science Fairs are a leading factor in the advancement of educational methods."

---

## New Bulletin

The Mellon Institute has just published a new bulletin of the Bibliographic Series, entitled "A Select, Annotated Bibliography on the Hygienic Aspects of Aluminum and Aluminum Utensils."

Since 1926 the Institute has been investigating the metals used in cooking utensils and food containers, and in response to many requests is now making available the results of its critical studies of the chemical and medical literature.

The introduction, written by Dr. George D. Beal, assistant director of the Mellon Institute, points out that aluminum is not a poisonous metal and does not give rise to any disease. Aluminum utensils are very resistant to corrosion by foodstuffs, and do not accelerate the destruction of vitamins or other food accessory substances during cooking.

---

**Alexander Silverman,** F.A.I.C., spoke on "Priestley and His Times," at the recent celebration of the 200th anniversary of the birth of Joseph Priestley, held by the First Unitarian Church of Pittsburgh.

**Kirby E. Jackson,** F.A.I.C., is the author of an article entitled "Chemical Agents of Warfare" in the March-April issue of *The Military Engineer.*